

Title (en)
METHOD FOR ANCHORING A JOINING ELEMENT IN AN OBJECT AND JOINING ELEMENT TO BE USED IN THE METHOD

Title (de)
VERFAHREN ZUR VERANKERUNG EINES VERBINDUNGSELEMENTS IN EINEM OBJEKT UND IN DIESEM VERFAHREN VERWENDETES VERBINDUNGSELEMENT

Title (fr)
PROCÉDÉ D'ANCRAGE D'UN ÉLÉMENT DE JONCTION DANS UN OBJET ET ÉLÉMENT DE JONCTION À UTILISER DANS LE PROCÉDÉ

Publication
EP 3120992 A1 20170125 (EN)

Application
EP 16186856 A 20071206

Priority

- US 88224806 P 20061228
- EP 07845617 A 20071206
- CH 2007000614 W 20071206

Abstract (en)
A joining element to be anchored in an object (10) with the aid of a thermoplastic material and mechanical vibration comprises a wall anchoring portion (3.2) having a circumferential surface which comprises the thermoplastic material and energy directors. The joining element comprises a central tube (2.1) reaching to the distal end, the central tube ending in a distal edge comprising the thermoplastic material. The joining element is anchored in an opening (5) provided in the object (10). For anchoring the joining element in the opening (5), mechanical vibrations e.g. ultrasonic vibrations are coupled into the joining element and the latter is forced into the opening (5). Thereby, the thermoplastic material of the circumferential surface of the wall anchoring portion (3.2) is liquefied and pressed into the opening wall.

IPC 8 full level
B29C 65/00 (2006.01)

CPC (source: EP US)
F16B 5/01 (2013.01 - EP US); **F16B 11/00** (2013.01 - US); **F16B 13/02** (2013.01 - US); **F16B 17/00** (2013.01 - EP US); **F16B 37/061** (2013.01 - EP US); **B29C 65/08** (2013.01 - EP US); **B29C 65/645** (2013.01 - EP US); **B29C 66/3022** (2013.01 - US); **B29C 66/30221** (2013.01 - EP US); **B29C 66/30223** (2013.01 - EP US); **B29C 66/30326** (2013.01 - EP US); **B29C 66/474** (2013.01 - EP US); **B29C 66/72525** (2013.01 - EP US); **B29C 66/727** (2013.01 - EP US); **B29C 66/7392** (2013.01 - EP US); **B29C 66/7487** (2013.01 - EP US); **B29C 66/8322** (2013.01 - EP US); **B29K 2101/12** (2013.01 - US); **B29K 2311/14** (2013.01 - EP US); **B29L 2007/002** (2013.01 - EP US); **B29L 2022/00** (2013.01 - EP US); **B29L 2031/22** (2013.01 - EP US); **B29L 2031/608** (2013.01 - EP US); **B29L 2031/737** (2013.01 - EP US); **Y10T 29/49934** (2015.01 - EP US); **Y10T 403/472** (2015.01 - EP US); **Y10T 403/477** (2015.01 - EP US); **Y10T 403/4949** (2015.01 - EP US)

Citation (applicant)

- WO 9842988 A1 19981001 - CREAOLIC SA [CH], et al
- WO 0079137 A1 20001228 - WOODWELDING AG [CH], et al

Citation (search report)

- [X1] US 5007779 A 19910416 - GORAN JAMES L [US]
- [A] US 5437750 A 19950801 - RINSE OFFRINGA ARNT [NL], et al
- [A] WO 2006002569 A1 20060112 - WOODWELDING AG [CH], et al

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
WO 2008080238 A1 20080710; CA 2673424 A1 20080710; CA 2673424 C 20180925; DK 3120992 T3 20190506; EP 2121284 A1 20091125; EP 2121284 B1 20160928; EP 3120992 A1 20170125; EP 3120992 B1 20190213; EP 3476573 A2 20190501; EP 3476573 A3 20190731; ES 2608891 T3 20170417; ES 2722055 T3 20190807; HU E043176 T2 20190828; JP 2010514590 A 20100506; JP 2013107394 A 20130606; JP 2014159157 A 20140904; JP 5246626 B2 20130724; JP 5871215 B2 20160301; LT 3120992 T 20190527; PL 2121284 T3 20170428; PL 3120992 T3 20190731; PT 3120992 T 20190527; SI 3120992 T1 20190628; TR 201905394 T4 20190521; US 2008199249 A1 20080821; US 2010313517 A1 20101216; US 2014010588 A1 20140109; US 2014237939 A1 20140828; US 2015110547 A1 20150423; US 7765672 B2 20100803; US 8550759 B2 20131008; US 8753053 B2 20140617; US 8955289 B2 20150217; US 9032693 B2 20150519

DOCDB simple family (application)
CH 2007000614 W 20071206; CA 2673424 A 20071206; DK 16186856 T 20071206; EP 07845617 A 20071206; EP 16186856 A 20071206; EP 18207885 A 20071206; ES 07845617 T 20071206; ES 16186856 T 20071206; HU E16186856 A 20071206; JP 2009543313 A 20071206; JP 2012283125 A 20121226; JP 2014051614 A 20140314; LT 16186856 T 20071206; PL 07845617 T 20071206; PL 16186856 T 20071206; PT 16186856 T 20071206; SI 200732109 T 20071206; TR 201905394 T 20071206; US 201314023573 A 20130911; US 201414271783 A 20140507; US 201414585460 A 20141230; US 82769910 A 20100630; US 96229207 A 20071221